Alberta
HUMAN RESOURCES
AND EMPLOYMENT
the people
& workplace
department

September 2001

# Occupational Injuries and Diseases in Alberta

## Exploration
## 1996 to 2000

## Upstream Oil and Gas
## Sub-Sector #1

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# 1. Introduction

*The Mission of Alberta Human Resources and Employment*

Alberta Human Resources and Employment's mission is to foster safe and healthy workplaces. Workplace Health and Safety works within the continuum of services provided by Alberta Human Resources and Employment. Its focus is on the development and implementation of strategies and initiatives aimed at meeting the department's goal that Alberta will have a fair, safe and healthy work environment. To this end, Alberta Human Resources and Employment recognizes that monitoring workplace health and safety will help to ensure that primary concerns are actively managed and that resources are directed where needed.

This report summarises the lost-time injuries and disease descriptions, characteristics of the injured worker and the risk of injury to workers in Alberta's upstream oil and gas industries for the years 1996 to 2000. Cost of the injuries and revenue in terms of total premiums paid by employers are presented as well. Finally, a summary of occupational fatalities accepted by the WCB for compensation and brief descriptions of fatalities investigated by Workplace Health and Safety are also provided.

The purpose of this report is to provide government, employers, workers and health and safety officers in upstream oil and gas industries with information about the industry key health and safety issues.

*Description of Upstream Oil and Gas Industries*

The upstream oil and gas industries can be subdivided into the following sub-sectors.
Exploration, Oilfield Maintenance and Construction, Well Servicing with Service Rigs and Power Swivels, Drilling of Oil and Gas Wells, Oilfield Downhole and Other Services, Tar Sands, Petroleum Producers, and Oilfield Trucking Services.

The next section gives the descriptions of the Exploration sub-sector.

## 2. Sub-Sector Description

### Sub-Sector # 1: Exploration

1. ***Seismic Geophysical/Mineral Exploration (Industry # 09200)***
This industry involves conducting exploration using seismic technology for the purpose of locating formations beneath the earth's surface that may produce usable minerals such as coal, or oil and gas.

The basic procedure used to locate favorable formation beneath the earth's surface is to send shock waves into the ground, and record the patterns on seismic recording equipment.

When exploring for oil and gas, any one of the following three methods may be employed to create the shock waves:
1. Seismographic - Dynamite exploded in a shot hole;
2. Vibraseismic - tractor or truck mounted vibrators which are released to the ground at certain points; and
3. Vacuum Guns - truck mounted piston strikes base plate to send shock waves through the ground

When exploring for minerals, such as coal, shock waves are created by means of small hand tools. Larger equipment is not required as minerals formations are generally not located as deep below the surface as are oil and gas.

Sound waves are received through instrument referred to as geophones. The geophones are in turn wired to recording instruments that log the sound wave patterns. The data processing and analysis of the obtained information, may or may not, be part of the contract.

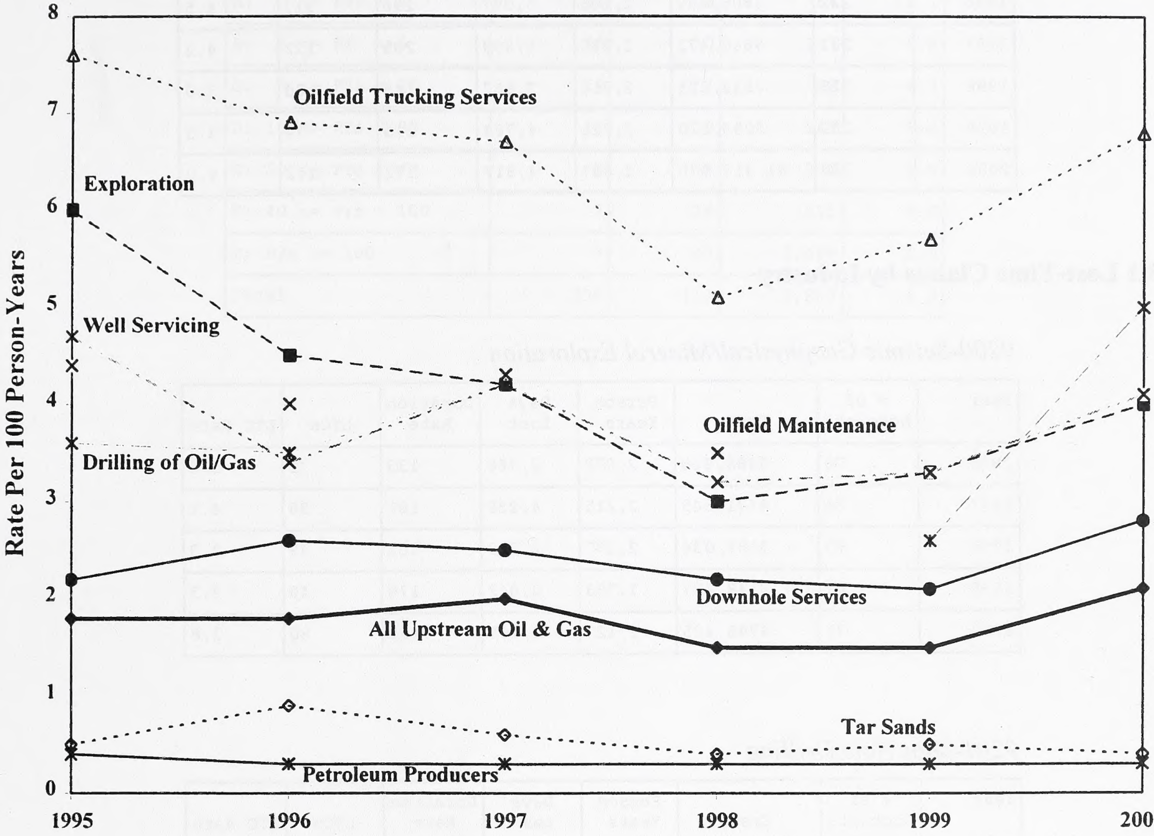
This industry does not cover shot hole drilling. This is normally subcontracted out to another company classified in industry 09201. Should an employer conduct drilling in conjunction with exploration, an additional industry is required.

Geophysical Exploration, other than seismic, is classified in industry 86405. The key difference is the generation and recording shock waves.

*1. **Shot Hole Drilling (Industry # 09201)***
The purpose of this industry is to drill bore holes for the purpose of holding explosives used in seismic exploration activities.

Shot hole drilling is performed with a small truck-mounted driller. This is normally a shallow drilling operation, drilling to a depth of 50 to 75 feet. This activity involves drilling only, as an exploration crew is responsible for placing and discharging the explosives. When the explosives are discharged or shot, the vibrations are recorded on a seismograph.

# Lost-Time Claim Rates
# Upstream Oil & Gas Subsectors
# Alberta: 1995-2000



## 3. Lost-Time Claim Rates and Duration Rates

### Exploration

| Year | # of Accounts | Cost | Person Years | Days Lost | Duration Rate | LTCs | LTC Rate |
|---|---|---|---|---|---|---|---|
| 1996 | 222 | $808,650 | 2,605 | 5,097 | 196 | 117 | 4.5 |
| 1997 | 221 | $640,472 | 2,880 | 5,898 | 205 | 122 | 4.2 |
| 1998 | 228 | $532,225 | 2,711 | 3,967 | 146 | 80 | 3.0 |
| 1999 | 230 | $256,120 | 2,224 | 4,784 | 215 | 74 | 3.3 |
| 2000 | 238 | $1,313,970 | 2,807 | 4,817 | 172 | 112 | 4.0 |

## 3.1 Lost-Time Claims by Industry

### *9200-Seismic Geophysical/Mineral Exploration*

| Year | # of Accounts | Cost | Person Years | Days Lost | Duration Rate | LTCs | LTC Rate |
|---|---|---|---|---|---|---|---|
| 1996 | 70 | $285,968 | 2,079 | 2,766 | 133 | 72 | 3.5 |
| 1997 | 64 | $471,345 | 2,215 | 4,239 | 191 | 90 | 4.1 |
| 1998 | 69 | $186,034 | 2,177 | 2,249 | 103 | 49 | 2.3 |
| 1999 | 67 | $148,437 | 1,733 | 3,042 | 176 | 40 | 2.3 |
| 2000 | 71 | $786,425 | 2,127 | 3,185 | 150 | 80 | 3.8 |

### *9201-Shot Hole Drilling*

| Year | # of Accounts | Cost | Person Years | Days Lost | Duration Rate | LTCs | LTC Rate |
|---|---|---|---|---|---|---|---|
| 1996 | 152 | $522,683 | 526 | 2,331 | 443 | 45 | 8.6 |
| 1997 | 157 | $169,127 | 665 | 1,659 | 249 | 32 | 4.8 |
| 1998 | 159 | $346,190 | 534 | 1,718 | 322 | 31 | 5.8 |
| 1999 | 163 | $107,682 | 491 | 1,742 | 354 | 34 | 6.9 |
| 2000 | 167 | $527,544 | 679 | 1,632 | 240 | 32 | 4.7 |

## 3.2 LTC Rates by Size of Employer: 2000

| Size of Employer | # of Accounts | LTCs | Person - Years | LTC Rate |
|---|---|---|---|---|
| A: 0 <= PYs < 1 | 119 | 6 | 54 | 11.1 |
| B: 1 <= PY < 5 | 72 | 10 | 147 | 6.8 |
| C: 5 <= PYs < 10 | 14 | 4 | 92 | 4.3 |
| D: 10 <= PYs < 20 | 11 | 9 | 162 | 5.6 |
| E: 20 <= PYs < 40 | 8 | 9 | 231 | 3.9 |
| F: 40 <= PYs < 100 | 7 | 34 | 515 | 6.6 |
| G: PYs >= 100 | 7 | 40 | 1,606 | 2.5 |
| Total | 238 | 112 | 2,807 | 4.0 |

# 4. Analysis of the Lost-Time Claims

## 4.1 Nature of Injury

| LOST-TIME CLAIMS ALBERTA: 1996 TO 2000 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 1996 | 1997 | 1998 | 1999 | 2000 | Number | Percent |
| SPRAIN, STRAIN, TEARS | 45 | 51 | 40 | 34 | 56 | 226 | 44.8 |
| OTHER TRAUMATIC INJURY/DISEASE | 17 | 16 | 9 | 11 | 26 | 79 | 15.6 |
| FRACTURE/DISLOCATION | 15 | 19 | 12 | 12 | 11 | 69 | 13.7 |
| SURFACE WOUNDS, BRUISES | 14 | 11 | 6 | 10 | 8 | 49 | 9.7 |
| OPEN WOUNDS | 6 | 8 | 3 | 3 | 5 | 25 | 5.0 |
| NATURE - UNS | 8 | 8 | 3 | 3 | 3 | 25 | 5.0 |
| SYSTEMATIC DISEASES, DISORDERS | 9 | 7 | 6 | 1 | 1 | 24 | 4.8 |
| MULTIPLE DISEASE/DISORDERS | 1 | 2 | . | . | . | 3 | 0.6 |
| SYMPTOMS, SIGN/ILLNESS | 1 | . | 1 | . | . | 2 | 0.4 |
| BURNS | 1 | . | . | . | . | 1 | 0.2 |
| INFECTIOUS/PARASITIC DISEASE | . | . | . | . | 1 | 1 | 0.2 |
| OTHER DISEASE/DISORDERS | . | . | . | . | 1 | 1 | 0.2 |
| Total | 117 | 122 | 80 | 74 | 112 | 505 | 100.0 |

## 4.2 Type of Event/Exposure

| LOST-TIME CLAIMS ALBERTA: 1996 TO 2000 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 1996 | 1997 | 1998 | 1999 | 2000 | Number | Percent |
| UNKNOWN | 16 | 19 | 9 | 7 | 12 | 63 | 12.5 |
| TRANSPORTATION ACCIDENTS | 22 | 23 | 11 | 6 | 25 | 87 | 17.2 |
| OVEREXERTION | 12 | 23 | 18 | 13 | 15 | 81 | 16.0 |
| BODILY REACTION | 20 | 10 | 6 | 11 | 12 | 59 | 11.7 |
| FALL ON SAME LEVEL | 10 | 11 | 7 | 15 | 13 | 56 | 11.1 |
| STRUCK BY OBJECTS | 9 | 7 | 9 | 9 | 7 | 41 | 8.1 |
| CAUGHT IN OBJECTS | 5 | 5 | 7 | 3 | 5 | 25 | 5.0 |
| FALL TO LOWER LEVEL | 6 | 10 | 3 | 3 | 1 | 23 | 4.6 |
| STRUCK AGAINST OBJECTS | 3 | 4 | 2 | 2 | 10 | 21 | 4.2 |
| EXPOSURE TO HARMFUL SUBSTANCES | 6 | 6 | 1 | . | 2 | 15 | 3.0 |
| OTHER FALLS | 5 | 1 | 2 | 1 | 5 | 14 | 2.8 |
| REPETITIVE MOTIONS | 1 | 1 | 3 | 1 | . | 6 | 1.2 |
| OTHER BODILY REACTION/EXERTION | 1 | 1 | . | 1 | 2 | 5 | 1.0 |
| ASSAULT/VIOLENT ACT BY PERSON | 1 | 1 | 1 | . | 1 | 4 | 0.8 |
| RUBBED OR ABRADED | . | . | 1 | 2 | . | 3 | 0.6 |
| FIRES AND EXPLOSIONS | . | . | . | . | 2 | 2 | 0.4 |
| Total | 117 | 122 | 80 | 74 | 112 | 505 | 100.0 |

## 4.3 Part of Body Injured

| LOST-TIME CLAIMS ALBERTA: 1996 TO 2000 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 1996 | 1997 | 1998 | 1999 | 2000 | Number | Percent |
| BACK | 21 | 26 | 19 | 15 | 26 | 107 | 21.2 |
| LEG(S) | 23 | 16 | 13 | 21 | 24 | 97 | 19.2 |
| OTHER TRUNK | 15 | 23 | 11 | 13 | 15 | 77 | 15.2 |
| ANKLE(S) & FOOT(FEET)-NOT TOES | 15 | 14 | 7 | 6 | 9 | 51 | 10.1 |
| HAND(S) | 6 | 6 | 6 | 6 | 4 | 28 | 5.5 |
| OTHER HEAD | 5 | 6 | 4 | 4 | 5 | 24 | 4.8 |
| OTHER UPPER EXTREMITIES | 6 | 5 | 4 | 3 | 6 | 24 | 4.8 |
| MULTIPLE BODY PARTS | 5 | 6 | 3 | . | 9 | 23 | 4.6 |
| FINGER(S) | 4 | 9 | 5 | 1 | 1 | 20 | 4.0 |
| NECK | 6 | 3 | 3 | 1 | 5 | 18 | 3.6 |
| EYE(S)-OPTIC NERVE,VISION | 5 | 4 | 3 | 2 | 2 | 16 | 3.2 |
| OTHER LOWER EXTREMITIES | 3 | 1 | 1 | 2 | 4 | 11 | 2.2 |
| UNKNOWN | 3 | 1 | 1 | . | 1 | 6 | 1.2 |
| BODY SYSTEMS | . | 2 | . | . | 1 | 3 | 0.6 |
| Total | 117 | 122 | 80 | 74 | 112 | 505 | 100.0 |

## 4.4 Source of Injury

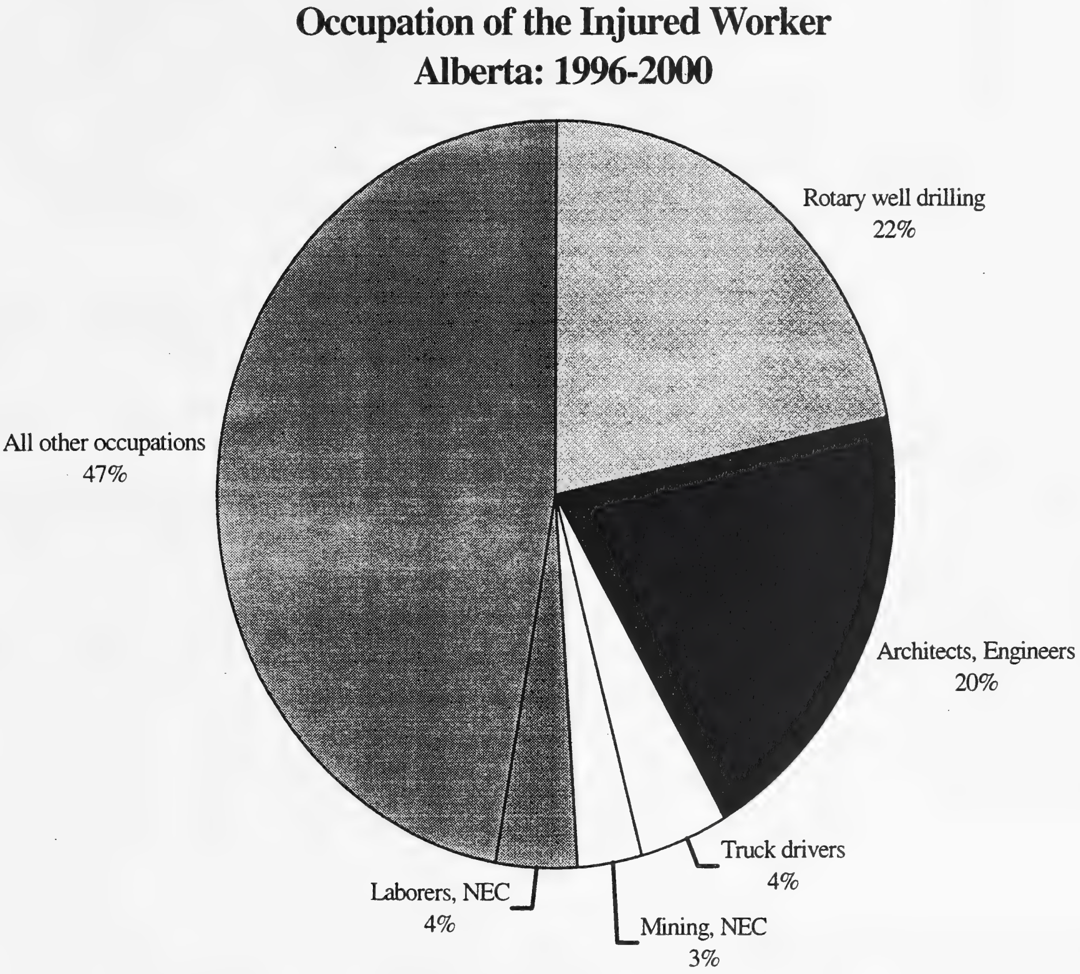
| LOST-TIME CLAIMS ALBERTA: 1996 TO 2000 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 1996 | 1997 | 1998 | 1999 | 2000 | Number | Percent |
| UNKNOWN | 25 | 30 | 17 | 17 | 20 | 109 | 21.6 |
| VEHICLES | 26 | 26 | 16 | 7 | 27 | 102 | 20.2 |
| STRUCTURES/SURFACES | 14 | 17 | 8 | 12 | 14 | 65 | 12.9 |
| PERSONS-INJURED WORKER | 20 | 11 | 7 | 13 | 13 | 64 | 12.7 |
| PARTS & MATERIALS | 12 | 12 | 7 | 9 | 8 | 48 | 9.5 |
| OTHER PLANTS/ANIMALS/MINERALS | 2 | 7 | 5 | 7 | 9 | 30 | 5.9 |
| CONTAINERS | 3 | 5 | 6 | 2 | 4 | 20 | 4.0 |
| MACHINERY | 2 | 4 | 5 | 3 | 3 | 17 | 3.4 |
| OTHER SOURCES | 6 | 3 | 2 | 1 | 5 | 17 | 3.4 |
| MINERAL-METALS/NONMETALS | 2 | 1 | . | 1 | 4 | 8 | 1.6 |
| HANDTOOLS-UNPOWERED | 2 | 1 | 3 | 1 | . | 7 | 1.4 |
| CHEMICAL/CHEMICAL PRODUCTS | 1 | 4 | . | . | 1 | 6 | 1.2 |
| OTHER TOOLS/EQUIPMENT | . | 1 | 2 | 1 | 2 | 6 | 1.2 |
| PERSONS-NOT THE INJURED WORKER | 1 | . | 1 | . | 1 | 3 | 0.6 |
| HANDTOOLS-POWERED | . | . | 1 | . | 1 | 2 | 0.4 |
| FURNITURE & FIXTURES | 1 | . | . | . | . | 1 | 0.2 |
| Total | 117 | 122 | 80 | 74 | 112 | 505 | 100.0 |

## 4.5 Duration of Disability

| LOST-TIME CLAIMS ALBERTA: 1996 TO 2000 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 1996 | 1997 | 1998 | 1999 | 2000 | Number | Percent |
| 01 - 05 DAYS LOST | 14 | 34 | 9 | 9 | 25 | 91 | 18.0 |
| 06 - 10 DAYS LOST | 18 | 17 | 13 | 9 | 7 | 64 | 12.7 |
| 11 - 15 DAYS LOST | 5 | 10 | 3 | 4 | 5 | 27 | 5.3 |
| 16 - 20 DAYS LOST | 8 | 6 | 6 | . | 4 | 24 | 4.8 |
| 21 - 30 DAYS LOST | 18 | 13 | 11 | 7 | 15 | 64 | 12.7 |
| 31 - 40 DAYS LOST | 9 | 9 | 6 | 6 | 5 | 35 | 6.9 |
| 41 - 50 DAYS LOST | 6 | 4 | 8 | 3 | 11 | 32 | 6.3 |
| 51 OR MORE DAYS LOST | 32 | 26 | 20 | 29 | 32 | 139 | 27.5 |
| DAYS LOST-UNSPECIFIED | 7 | 3 | 4 | 7 | 8 | 29 | 5.7 |
| Total | 117 | 122 | 80 | 74 | 112 | 505 | 100.0 |

# 5. Characteristics of the Injured Worker

## 5.1 Occupation of Injured Worker



## 5.2 Age of injured Worker

| LOST-TIME CLAIMS ALBERTA: 1996 TO 2000 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 1996 | 1997 | 1998 | 1999 | 2000 | Number | Percent |
| 15-19 YEARS | 11 | 17 | 6 | 2 | 11 | 47 | 9.3 |
| 20-24 YEARS | 31 | 35 | 29 | 30 | 37 | 162 | 32.1 |
| 25-34 YEARS | 47 | 48 | 26 | 31 | 39 | 191 | 37.8 |
| 35-44 YEARS | 22 | 19 | 12 | 10 | 22 | 85 | 16.8 |
| 45-54 YEARS | 5 | 2 | 4 | . | 2 | 13 | 2.6 |
| 55-64 YEARS | 1 | 1 | 3 | . | . | 5 | 1.0 |
| 65 YRS AND OVER | . | . | . | 1 | . | 1 | 0.2 |
| AGE-UNSPECIFIED | . | . | . | . | 1 | 1 | 0.2 |
| Total | 117 | 122 | 80 | 74 | 112 | 505 | 100.0 |

## 5.3 Length of Time Employed

| LOST-TIME CLAIMS ALBERTA: 1996 TO 2000 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 1996 | 1997 | 1998 | 1999 | 2000 | Number | Percent |
| A. LESS THAN 1 MONTH | 33 | 39 | 27 | 25 | 37 | 161 | 31.9 |
| B. 1 MONTH TO < 6 MONTHS | 27 | 31 | 25 | 10 | 22 | 115 | 22.8 |
| C. 6 MONTHS TO < 1 YEAR | 5 | 5 | 6 | 4 | 9 | 29 | 5.7 |
| D. 1 YEAR OR MORE | 14 | 16 | 7 | 10 | 11 | 58 | 11.5 |
| E. TIME-UNSPECIFIED | 38 | 31 | 15 | 25 | 33 | 142 | 28.1 |
| Total | 117 | 122 | 80 | 74 | 112 | 505 | 100.0 |

## 5.4 Gender of Injured Worker

| LOST-TIME CLAIMS ALBERTA: 1996 TO 2000 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 1996 | 1997 | 1998 | 1999 | 2000 | Number | Percent |
| MALE | 114 | 119 | 78 | 73 | 108 | 492 | 97.4 |
| FEMALE | . | 2 | 2 | . | 3 | 7 | 1.4 |
| GENDER-UNSPECIFIED | 3 | 1 | . | 1 | 1 | 6 | 1.2 |
| Total | 117 | 122 | 80 | 74 | 112 | 505 | 100.0 |

## 6. Cost of Claims and Employer Premiums

*Sub-Sector 1-Exploration*

| | Occurrence Year | | | | |
|---|---|---|---|---|---|
| | 1996 | 1997 | 1998 | 1999 | 2000 |
| **Transaction Year** | | | | | |
| **1996** | $726,172 | | | | |
| **1997** | $199,689 | $615,065 | | | |
| **1998** | $229,488 | $181,101 | $490,316 | | |
| **1999** | $29,525 | $117,885 | $198,374 | $315,243 | |
| **2000** | $3,857 | $65,862 | $71,306 | $266,245 | $1,185,815 |
| **Total cost** | $1,188,731 | $979,912 | $759,996 | $581,488 | $1,185,815 |
| **Total Premiums** | $2,805,230 | $3,728,847 | $2,267,632 | $1,469,207 | $2,158,370 |

The above claim cost and employer premiums are for the five-year period 1996 through 2000. The data are as of May 4, 2001.

The cost of claim amount reflects only paid cost on claims that have occurred in the five-year period. The claim costs are tracked by occurrence year and the year that the costs were transacted.

The premiums are the total of all premiums paid by employers in each year.

## 7. Occupational Fatalities

An occupational fatality is the death of a worker that results from a work-related incident or exposure. Alberta Human Resources and Employment classifies occupational fatalities into three general types: motor vehicle incident, workplace incident and occupational diseases. Each is described in detail below.

### *Motor Vehicle Incident*

Motor vehicle incidents typically involve highway vehicles operating on public roads in which the fatally injured worker was either the driver or a passenger. This category also includes fatalities involving aircraft crashes, train crashes, helicopter crashes, etc.

### *Workplace Incident*

Fatal workplace incidents consist of cases in which the worker dies at a work site, or as a result of injuries sustained at a work site. It is this type of fatality that Alberta Human Resources and Employment may be responsible for investigating.

### *Occupational Diseases*

Occupational disease fatalities consist mostly of recognized occupational disease, that is, disease known to be primarily or exclusively work-related (e.g. asbestosis, black lung disease). Occupational diseases are frequently diagnosed many years after the initial or crucial exposure to the toxic substance, and in such cases it is very difficult to determine when the fatal exposure occurred. Thus, the occupational disease category should not be interpreted to reflect present work site hazardous conditions or exposures.

Each year the Workers' Compensation Board (WCB) accepts some occupational fatality claims for compensation. Occupational fatality claims that were accepted in a particular year may include fatalities from prior years.

## Description of Exploration Workplace Fatalities Accepted by the WCB Alberta: 1996-2000

| Year | Occupational Disease | | Motor Vehicle incident | | Workplace Incident | | Total | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| 1996 | 0 | 0.0 | 2 | 100.0 | 0 | 0.0 | 2 | 100 |
| 1997 | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 1 | 100 |
| 1998 | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 1 | 100 |
| 1999 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0 |
| 2000 | 0 | 0.0 | 1 | 25.0 | 3 | 75.0 | 4 | 100 |
| Total | 0 | 0.0 | 5 | 62.5 | 3 | 37.5 | 8 | 100 |

## 8. OHS Investigated Occupational Fatalities 1996-2000

| | | | |
|---|---|---|---|
| YEAR: | 2000 | FILE: | 948 |
| OCCUPATION: | Driller | AGE: | 28 |
| INDUSTRY: | Shot Hole Drilling | | |
| EXPERIENCE: | Unknown | | |

DESCRIPTION: The driller and his helper drove a Nodwell 110 tracked vehicle to the staging area to refill the water tank. After refilling the tank, the driller started to drive the Nodwell 110 up the seismic cut line. The helper was seated in the rear of the vehicle cab; neither man was wearing seat belts. The vehicle was three quarters of the way up the steep incline when it started to slip backwards. The Nodwell 110 continued to slide backwards until it rolled on the driver's side. The helper remained inside the cab. The driller, however, was thrown from the cab and was pinned under the vehicle.

## EXPLORATION

| | | | |
|---|---|---|---|
| YEAR: | 2000 | FILE: | 952 |
| OCCUPATION: | Labourer | AGE: | 44 |
| INDUSTRY: | Seismic Geophysical/Mineral Exploration | | |
| EXPERIENCE: | 7.5 Years | | |

DESCRIPTION: Five workers (A, B, C, D & E) were laying out geophone lines for recording source signals. Three ground crew workers (A, B, C) were planting geophone lines on the ground. Worker D was dispensing lines to the workers on the ground from the deck of the line vehicle. Worker E was driving the line vehicle. Another vehicle driven by a troubleshooter going in the opposite direction, passed the line vehicle and workers, and got stuck in a snow bank. Once the troubleshooter freed the vehicle, he proceeded backwards down the line. While backing up he suddenly heard someone yell at him to stop. At the same time the troubleshooter felt the rear end passenger side the vehicle go up on something. Ground Crew Worker B had been run over by the vehicle.

| | | | |
|---|---|---|---|
| YEAR: | 2000 | FILE: | 956 |
| OCCUPATION: | Seismic Asst./Seismic Blaster | AGE: | 22 |
| INDUSTRY: | Shot Hole Drilling | | |
| EXPERIENCE: | 8 Months | | |

DESCRIPTION: The seismic drilling crew arrived in the tracked drilling vehicle at their designated start point and proceeded to conduct drilling activities. Prior to leaving the vehicle, the driller updated the explosives recording manifest. He did not see the assistant remove explosives from the vehicle's magazine. The driller exited the cab and commenced drilling activities. Approximately 3 minutes later, he heard an explosion. The driller ran to the north side of the tracked vehicle and found the fatally injured assistant lying in the snow.

The investigation found that a headlamp battery in close proximity to a pre-primed explosive charge might have triggered the explosion.

# Appendix A: Terms, Definitions, and Formulas

| | |
|---|---|
| **Lost-Time Claim** | A lost-time claim (LTC) is a claim for an occupational injury or disease, which disables the worker beyond the day of injury. Included are claims for which wages compensation are paid, permanent disability claims, fatalities, and cases in which the injured worker is assigned light duties or other modified work. |
| **Person-Years** | Person-year estimates are calculated from wage and payroll data provided by account holders to the WCB. Alberta Human Resources and Employment uses these data to estimate an average industry wage, and uses the average industry wage and employer payroll data to estimate person-years for each employer and each industry. One person-year is equivalent to one full-time worker working for one year, and can be assumed to equal 2,000 hours worked. |
| **LTC Rate** | The lost-time claim (LTC) rate is calculated by dividing the number of lost-time claims by the person-year estimate, and multiplying the result by 100. The LTC rate represents the probability or risk of disabling injury or disease to a worker during a period of one-year work. Comparisons of LTC rates between industries, or between years, can be used to indicate increases, decreases, or differences in this risk.<br>$\text{LTC Rate} = \frac{\text{Number of LTCs X 100}}{\text{Estimated Person-years}}$ |
| **Duration (Days Lost)** | The duration of disability is the number of days following the injury or disease for which the worker was disabled, and unable to perform normal work duties. This information is obtained for this report from data on compensation days paid on each claim from WCB. Alberta Human Resources and Employment obtains these data on March 31 of the year following the claim year, and does not update the information, even though many injured workers continue to be disabled beyond this date. As a result, the duration information reported here underestimates the true impact of lost-time injury and disease. |
| **Duration Rate** | The duration rate is calculated by dividing the number of workdays lost (disability days) by the person-year estimate, and multiplying by 100. The result is expressed as days lost per 100 person-years worked, and indicates, in part, the economic impact of occupational injury and disease. Duration rates are not recommended as reliable indicators of full economic cost. In addition, readers are warned that duration rates are highly unstable when based on only a few lost-time claims; it is recommended that the duration rate not be calculated based upon fewer than 30 lost-time claims.<br>$\text{Duration Rate} = \frac{\text{Disability Days X 100}}{\text{Estimated Person-Years}}$ |
| **WCB Accepted Fatality** | An occupational fatality is the death of a worker which resulted from a work-related incident or exposure and which has been accepted by the WCB for compensation. A fatality is counted in the year it is accepted. |
| **NEC** | Means ‘Not Elsewhere Classified’. |
| **UNS** | Means ‘Unspecified’. |

## Appendix B: Upstream Oil and Gas 2000 Industry Codes

**Sub-Sector 1:** **Exploration**
Industries: 09200~Seismic Geophysical/Mineral Exploration
09201~Shot Hole Drilling

**Sub-Sector 2:** **Oilfield Maintenance and Construction**
Industries: 06304~Oilfield Construction and/or Maintenance

**Sub-Sector 3:** **Well Servicing With Service Rigs**
Industries: 09903~Well servicing with Service Rigs including Power Swivels

**Sub-Sector 4:** **Drilling of Oil and gas Wells**
Industries: 09600~Drilling of Oil & Gas Wells

**Sub-Sector 5:** **Downhole & Other Oilfield Services**
Industries 06305~Field Production Operators
06306~Vacuum Removal of Waste
09900~Mud Logging
09902~Pressure Cleaning Services
09904~Rathole Drilling and Rig Anchoring
09911~Oilfield Downhole Services
09915~Well Casing Services
09921~Servicing Christmas Trees On Oil Wells
09927~Liquid Waste Treatment & Disposal

**Sub-Sector 6:** **Tar Sands**
Industries: 06600~Mining & Processing of Bituminous Sand
06601~Research/Development, Oil Sands and Heavy Oil Recovery

**Sub-Sector 7:** **Oil & Gas Exploration/Development**
Industries: 06300~Oil and Gas Exploration & Development-Upstream Operations

**Sub-Sector 8:** **Oilfield Trucking Services**
Industries: 50720~Oilfield Trucking Services

**For further information contact:**

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Alberta Human Resources and Employment website:
http://www.gov.ab.ca/hre

Alberta Workplace Health and Safety website:
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